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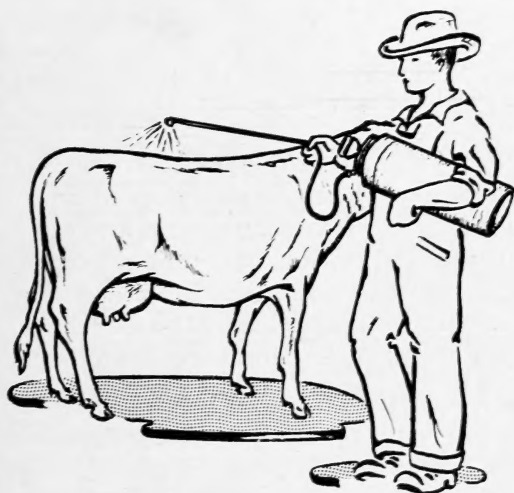
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FLY CONTROL on DAIRY CATTLE and in DAIRY BARNs



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**If you have any questions, consult
your county agent, extension entomol-
ogist, or specialist in your State agri-
cultural college or experiment station,
or write to the Bureau of Entomology
and Plant Quarantine, United States
Department of Agriculture, Washington
25, D. C.**

FLY CONTROL ON DAIRY CATTLE AND IN DAIRY BARNs

Recent developments have necessitated changes in recommendations for the control of flies on dairy farms. Studies by Federal and State agencies have shown that DDT will appear in milk of dairy cows treated with this insecticide for insect control. It has also been found that spraying of dairy barns with DDT may cause milk to become contaminated with small amounts of the chemical. During the past few years house flies have developed resistance to DDT, and the insecticide has failed to give satisfactory control of this insect in many places. Moreover, many farmers have relied too much on insecticides for controlling flies and have neglected sanitary practices which must be followed to reduce fly breeding.

For fly control on the cows, methoxychlor, pyrethrum, and certain organic thiocyanate insecticides are now recommended. For use in the dairy barns and milk processing plants, these materials and lindane also may be used. However, lindane is not recommended at present for application to dairy cows for fly control.

DDT is still recommended for fly control of beef animals, and other new insecticides, including methoxychlor, TDE, and toxaphene, may too be used for this purpose. DDT is also still recommended for fly control in barns

and other places on the farm except inside dairy barns and milk rooms. However, owing to the uncertainty of obtaining satisfactory results with this insecticide, lindane, chlordane, toxaphene, or methoxychlor may prove more effective.

Since several kinds of insecticides are now recommended for use on dairy cows and other livestock and in farm buildings, and since the effectiveness of these materials may vary depending on local conditions, the dairy farmers should keep informed of local recommendations issued by county and State specialists.

Treatment of Dairy Cows

Control of Horn Flies. -- Since the horn fly spends most of its life on the animal, it can be controlled readily with the new long-lasting insecticides. It breeds in fresh cattle droppings, and on most farms destruction of its breeding places is impractical.

Methoxychlor may be used for horn fly control in the same way and at the same concentrations formerly recommended for DDT. It can be obtained in wettable-powder form and as an emulsion concentrate. To prepare a 0.5-percent spray, mix 8 pounds of 50-percent wettable powder in 100 gallons of water, or about 6 1/2 ounces in 5 gallons. Emulsion concentrates contain 25 percent of methoxychlor. To make a 0.5-percent spray, add 2 gallons of concentrate to 100 gallons of water, or 0.8 pint to 5 gallons. Apply

with a power sprayer or with a compressed-air or knapsack-type sprayer. Emulsion sprays are usually easier to apply with hand sprayers than are sprays made from wettable powders.

The quantity of spray to apply depends on the size of the animal and the amount of hair. About 2 quarts of 0.5-percent spray is sufficient for most cows. In some sections of the country, cattle owners have been using up to 1.5-percent methoxychlor sprays, or even higher percentages, but they reduce the amount of spray per animal proportionately. A very quick and satisfactory method for using methoxychlor on small herds of dairy animals is to thoroughly mix one-half pound of 50-percent methoxychlor wettable powder in 2 1/2 gallons (a 10-quart pail) of water. Pour the mixture into a 3-gallon compressed-air or knapsack-type sprayer and pump up to the highest pressure possible by hand. One full sprayer prepared in this manner will treat 10 cows at the rate of about 1 quart per cow. It is not necessary to cover the entire animal with the spray. Good control of horn flies can be obtained by applying the insecticide with a sponge. Complete coverage, however, will help to control lice and other insects. One application will usually be effective for about 3 weeks.

Pyrethrum sprays also may be used for horn fly control. The effectiveness of pyrethrum is increased when used with another chemical such as piperonyl butoxide. An emulsion concentrate containing about 1 percent of

pyrethrins and 10 percent of piperonyl butoxide is available. Dilute this concentrate 1 part to 19 parts of water, and apply at the rate of 2 quarts of spray per animal, or use higher concentrations if less spray is applied. One treatment will usually control horn flies for 5 to 7 days. Repeated treatments will give longer protection, because fewer flies will be breeding in animal droppings.

To protect treated dairy cattle from reinfestation from infested cattle nearby, also apply a spray to bulls, young dairy stock, and beef cattle. DDT and TDE, as well as methoxychlor, may be used for this purpose at the same concentrations (0.5 to 1.5 percent) and applied in the same way suggested for methoxychlor on dairy cows. Toxaphene has also recently been recommended for controlling flies on cattle other than dairy cattle. It is also recommended as a 0.5-percent spray. However, this is the maximum concentration recommended, even if less than the usual 2 quarts per animal is applied.

If all the farmers in a community will treat their cattle regularly, horn flies will be controlled with much less cost and effort.

Control of Stable Flies. - - The stable fly stays on the animal only long enough to get a meal of blood. It then rests in or outside barns, on trees, corral fences, and in other favorable places. It breeds in piles of fresh manure and straw and in moist places where feed has accumulated. Because this fly is

on the animal for such a short time, treatment of the animal with an insecticide is not so effective as for the control of the horn fly. Sanitation and application of a residual insecticide to the premises are important supplemental measures for controlling the stable fly.

Better ways than we now know for using methoxychlor and the new pyrethrum sprays on animals to reduce stable fly attack may be worked out. Therefore, the suggestions given here are only tentative.

The suggestions given for treating dairy cattle for controlling the horn fly may also be used. However, it may be necessary to apply sprays twice a week. About 1 quart of spray on the legs, shoulders, dewlap, belly, and lower sides of each animal will repel some of the flies for only a day or two, but for about 3 days after the treatment most of the flies feeding on the animals will be killed. This treatment will also control horn flies, especially if the backs of the animals also are sprayed lightly.

Pyrethrum insecticides are the most effective of the available materials for protection of dairy cows against stable flies. Mix 1 part of an emulsion concentrate containing 1 percent of pyrethrins and 10 percent of piperonyl butoxide with 9 parts of water, and apply at the rate of 1 quart per animal, as described for methoxychlor. Most of the flies are repelled or killed if they attempt to feed during the first 3 days after treatment. This treatment will also control the horn fly.

Control of Horse Flies and Deer Flies. --Pyrethrum sprays have been used with some success in protecting dairy cattle from horse flies and deer flies. A thorough coverage with the pyrethrum-piperonyl butoxide spray, as described for stable fly control, will usually protect the animals for about 2 to 3 days. Methoxychlor shows little repelling action, but for 2 to 3 days after treatment a high percentage of the feeding flies are killed.

Use of Oil Sprays. --Most dairymen are familiar with the oil sprays for controlling flies on cattle. They may contain pyrethrins alone or plus other materials such as piperonyl butoxide, or from 3 to 5 percent of certain organic thiocyanates. The oil used in such sprays is usually a refined kerosene. Not more than 1 ounce of spray should be applied with a fine-mist sprayer, moistening only the outer coat of hair. These sprays are usually applied at milking time and may be necessary at each milking to provide satisfactory protection against flies. It is important to follow directions carefully in using such sprays, because, unlike water sprays, oil will severely burn or even kill cows if the skin becomes wet with it.

Treatment of Dairy Barns

For controlling house flies and stable flies in and around dairy barns, the following recommendations are made:

Keep the Premises Clean. --The farmer should constantly be on the lookout for places where house flies and stable flies breed, and eliminate them. He should haul manure from the barnyard and spread it on the fields at least twice each week, and frequently dispose of accumulations of straw, garbage, and vegetable refuse. The use of insecticides should be considered only as a supplement to sanitation.

Use Insecticides Outside Dairy Barns. --Apply residual sprays to surfaces where flies rest or roost. Treat not just the dairy barn, but beef-cattle barns, stables, sheds, pigpens, and poultry houses, as well as corral fences, trees, garbage cans, and any other places where the flies commonly rest. DDT may be used outside the dairy barn as long as it continues to give satisfactory control. When it fails, however, use lindane, chlordane, methoxychlor, or toxaphene. Apply as often as necessary. Satisfactory control is usually obtained for 2 to 4 weeks or longer from one application. Flies that have developed a strong resistance to DDT may also be difficult to control with methoxychlor.

The residual sprays should be applied so that the surfaces are wet to the point of runoff. The amount of spray required will vary depending on the nature of the surface, whether rough or smooth, and also to some extent with the type of formulation. On the average, 1 gallon of spray will treat 500 square feet of surface. On smooth

nonabsorbent surfaces less spray will be required and the concentration of the insecticide should be increased. Compressed-air hand sprayers may be used for small spraying jobs; however, power sprayers are suggested for most purposes. The pressure should be adjusted to 100 pounds per square inch or less.

DDT and methoxychlor are available as 50-percent wettable powders and as 25-percent emulsion concentrates. If a wettable powder is used, a spray containing 2.5 percent of the insecticide is recommended. To make this concentration, add 40 pounds of 50-percent wettable powder to 100 gallons of water, or for small quantities 2 pounds to 5 gallons. On most surfaces sprays made from DDT or methoxychlor wettable powders are more effective than emulsion sprays. The emulsion concentrates contain 25 percent of the insecticide. To make 100 gallons of a 5-percent spray, add 20 gallons of the emulsion concentrate to 80 gallons of water; to make 5 gallons, add 1 gallon to 4 gallons of water.

Chlordane is available as emulsion concentrates that require dilution with water to make the desired concentration of finished spray. A 2-percent spray is recommended for most situations. As the percentage of chlordane in the commercial products varies, follow the directions on the label for making the desired concentration of spray.

Lindane is marketed as a 25-percent wettable powder and also as 20- or 25-percent emulsion concentrates. Lindane sprays should contain at least 0.3 percent of the insecticide. To obtain this concentration, add 10 pounds of the wettable powder or 1 1/2 gallons of the 20-percent emulsion concentrate to 100 gallons of water. For 5 gallons use 1/2 pound of the wettable powder and 0.6 pint of the emulsion. When emulsions are used for treating smooth surfaces, the concentration should be increased to 0.5 percent.

In some areas toxaphene has given good results of fly control in barns. If used for this purpose the finished spray should contain 5 percent of toxaphene.

Use Insecticides in Dairy Barns. -- Methoxychlor and lindane are the only insecticides now recommended as residual sprays for fly control inside barns where cows are milked, or in places on the farm where milk is processed. The concentrations to employ and methods of applying the sprays have already been discussed. The residual sprays may be supplemented with mist sprays or aerosol to aid in controlling flies. Insecticides containing pyrethrum or organic thiocyanates are suitable for this purpose.

Use Screens. -- Wherever practical, install tight-fitting screens in windows and doors of milk rooms and other farm buildings.

PRECAUTIONS

Insecticides are poisonous. Careless handling and improper application may cause harmful effects on operators, animals, or food products.

Do not expose the skin to insecticides unnecessarily.

Do not contaminate feed, feed troughs, drinking fountains, and milking utensils.

Cut off the power before applying residual sprays to electric wires or fuse boxes.

Do not strike matches or smoke when applying inflammable sprays.

Do not apply oil solutions to animals in amounts that will wet the skin.

Read the directions on the label carefully before preparing sprays.

